Specification (Interim)

370. SINKHOLE AND SINKHOLE AREA TREATMENT

INVERTED FILTER 1

Procedure for installing an inverted filter to treat sinkholes with less than 5 acres drainage area.

1 Remove and properly dispose of materials dumped in and around the sinkhole.

2. Excavate loose material from the sinkhole and try to expose the solution void(s) in the bottom. Enlarge the sinkhole, as necessary, to allow for installation of the filter materials (Figure 1).

3. Select a field stone(s) that is about 1.5 times larger than the solution void(s). Place the stone(s) into the void(s) forming a secure "bridge."

4. Place a layer of filter material over the "bridge" at a minimum thickness of 18 inches. About 30 percent of the material should be larger than the openings between the bridge and the void(s). (A well placed "bridge" should not have large openings around it.) In most cases, this material could be R-3 stone.

5. Place a layer of smaller size filter material over the previous layer at a minimum thickness of 9 inches. The size should be 1/4 to 1/2 the size of the previous layer. In most cases this material could be No. 57 stone.

6. Place a layer of sand size filter material over the previous layer at a minimum thickness of 9 inches. The sand has to be compatible in size with the previous layer to prevent piping. In most cases this material could be Type '.A' sand

7. (A non-woven filter cloth with a burst strength between 100 to 200 psi can be substituted for the stone and sand filter materials discussed in 5 and 6.)

8. Backfill over the last filter layer (or filter cloth) with soil material to the surface. Overfill by about 5 percent to allow for settlement. The material should be mineral soil with at least 12 percent fines. The reuse of any soil material excavated from the sinkhole should be considered and any available topsoil should be placed on the surface.

9. Stone used for the "bridge" and the filters should have a rock strength at least equal to moderately hard (i.e. resistant to abrasion or cutting by a knife blade but can be easily dented or broken by light blows with a hammer). Shale or similar soft and non-durable rock is not acceptable.

INVERTED FILTER 2

Procedure for installing an inverted filter to treat sinkholes with drainage areas between 5 and 15 acres:

1. Remove and properly dispose of materials dumped in and around the sinkhole.

2. Excavate loose material from the sinkhole and try to expose the solution void(s) ill the bottom. Enlarge the sinkhole, as necessary to allow for installation of the filter materials (Figure 2).

3. Place a layer of filter material into the sinkhole allowing the stone to fill the void(s) below the bottom of excavated sinkhole. The size should be 1/4 to 1/2 the size of the void(s). In most cases this material could be R-3 stone.

4. Place a layer of the same size filter material at a thickness of about 3/4 D (D = total depth) above the sinkhole bottom.

5. Place a layer of smaller size filter material over the previous layer at a thickness of about 1/4 D. Bring this layer to the surface. The size should be 1/4 to 1/2 the size of the previous layer. In most cases this material could be No. 57 stone.

6. Stone used for the filters should have a rock strength at least equal to moderately hard (i.e. resistant to abrasion or cutting by a knife blade but can be easily dented or broken by light blows with a hammer). Shale or similar soft and non-durable rock is not acceptable.

The owner/operator shall be responsible for maintaining the treated sinkhole and sinkhole area-according to the plan and design provided